AMENDMENTS TO CLAIMS

Claims 1-7 (cancelled)

Claim 8. (Currently amended) A method of processing an input digital image produced by an optical system, the input image having less than full color information at each of a plurality of pixels, the method comprising:

accessing an operator including an array of demosaicing weights, values of the weights determined from measured parameters of the optical system and a model of ~~at least one of an image model and an optical system model, the optical system model based on measured parameters of~~ the optical system; and

applying the operator to the input image to produce an output image having full color information at each of a plurality of pixels.

Claim 9. (Previously presented) The method of claim 8, wherein the operator compensates for degradation in the optical system.

Claim 10. (Previously presented) The method of claim 8, wherein applying the operator includes forming a plurality of input vectors from the input image, each input vector formed from super pixels, and applying the operator to the input vectors.

Claim 11. (Previously presented) The method of claim 8, wherein the operator is used for different resolutions, and a resulting fixed resolution image is resampled.

Claims 12-14 (Cancelled)

Claim 15. (Previously presented) An article for a processor, the article including computer memory encoded with instructions for causing the processor to perform the method of claim 8.

Claim 16. (Previously presented) A digital camera including a processor programmed to perform the method of claim 8.

Claim 17. (Previously presented) The digital camera of claim 16, further comprising memory for storing a plurality of candidate operators; and wherein the processor is programmed to access the operator by selecting the operator from one of the plurality of candidates.

Claim 18. (Currently amended) A method of generating a linear operator for demosaicing of a digital image by a digital camera, the method comprising

accessing a parametric image capture description;

measuring parameters of the camera; and

using ~~at least one of a camera model and an image model to design~~ the parametric description and the measured parameters to obtain coefficients of the linear operator~~, the camera model based on measured parameters of the camera~~.

Claim 19. (Previously presented) The method of claim 18, wherein a standard noise model and a linear minimization technique are used to generate the coefficients.

Claim 20. (Previously presented) A computer programmed to perform the method of claim 18.

Claim 21. (Previously presented) The method of claim 8, wherein the values of the demosaicing weights are determined to additionally compensate for image degradation.

Claim 22. (Previously presented) The method of claim 8, wherein the operator is accessed from a plurality of different operators.

Claim 23. (Previously presented) The method of claim 22, wherein the operators are included in T-matrices.

Claim 24-25 (Cancelled)

Claim 26. (Previously presented) The method of claim 18, wherein the coefficients are designed to perform both demosaicing and compensation of image degradation by the digital camera.

Claim 27. (Currently amended) The method of Claim 18, wherein

measuring the parameters includes measuring at least one of the following parameters:

scene illuminant spectral power density;

color spectral response function; and

point spread function.

~~the digital camera includes a lens system, and wherein the camera model includes at least one measured parameter of the lens system.~~

Claim 28. (Canceled)

Claim 29. (Currently amended) The method of claim 18, wherein an $(S\lambda_1\lambda_2)x(PK_1K_2)$ reconstruction matrix is computed from ~~the camera model~~parametric description and the measured parameters, and wherein the linear operator is recovered from the reconstruction matrix.

Claim 30 (New) The method of claim 18, wherein the parametric description includes a deterministic part and a random part.

Claim 31 (New). The method of claim 30, wherein the deterministic part includes at least one of scene illuminant spectral power density, color spectral response function, and point spread function; and wherein the random part includes noise statistics.

Claim 32 (New) The method of claim 18, wherein the parametric description is $\hat{x}(\omega) = \hat{v}(\omega) + \sum_{\omega_a \in \Omega_a(\omega)} H(\omega_a)\hat{z}(\Lambda^{-1}\omega_a)$.

Claim 33 (New) The method of claim 18, wherein the coefficients of the linear operator are obtained without the use of measured image samples.

Claim 34 (New) The method of claim 18, wherein using the parametric description and the measured parameters includes using inverse equations of the parametric description to obtain the coefficients.

Claim 35 (New) The method of claim 18, wherein using the parametric description and the measured parameters includes inserting the measured parameters into the parametric description, and then inverting the parametric description.

Claim 36. (New) An article for a processor, the article including computer memory encoded with the linear operator of claim 18.

Claim 37. (New) A digital camera including memory encoded with the linear operator of claim 18.